

REMARKS

Claims 1, 4-31 and 37-50 are pending in this application. By this Amendment, claims 1, 4, 5, 7, 9, 11, 12 and 37 are amended. The amendments introduce no new matter. Claims 2, 3 and 32-36 are canceled without prejudice to, or disclaimer of, the subject matter recited in those claims. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiners Garcia and Feggins during the April 6, 2006 personal interview. Applicants' separate record of a summary of the substance of the personal interview is contained in the following remarks.

The Office Action, in paragraph 1, indicates that the Information Disclosure Statement filed on November 26, 2003 fails to comply with the provisions of 37 C.F.R. §1.97 and §1.98 and MPEP §609 in that an attorney docket number and unpublished U.S. application numbers are listed in the "U.S. Patent Documents" section. It is noted, however, that the documents listed in the Information Disclosure Statement have been otherwise considered by the Examiner and are indicated on the Form PTO-892 attached to the Office Action. Applicants, therefore, understand that no further action is required to ensure consideration of the listed references.

The Office Action, in paragraphs 2 and 3, makes final the Restriction Requirement. As such, claims 32-36 are indicated as being withdrawn from consideration as drawn to a non-elected group of claims. Claims 32-36 are hereby canceled.

The Office Action, in paragraph 5, rejects claims 1, 14, 17-20, 37-39 and 48 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,059,046 to Tanuma et al. (hereinafter "Tanuma") in view of U.S. Patent No. 5,880,754 to Niikura et al. (hereinafter "Niikura"). The Office Action, in paragraph 6, rejects claims 2 and 11 under 35 U.S.C.

§103(a) as being unpatentable over Tanuma as modified by Niikura as applied to claim 1 above, and further in view of U.S. Patent No. 6,305,786 to Plotkin et al. (hereinafter "Plotkin"). The Office Action, in paragraph 7, rejects claims 3-7, 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Tanuma as modified by Niikura as applied to claim 1 above, and further in view of U.S. Patent Application Publication No. US 2005-0109766 to Miller et al. (hereinafter "Miller"); and in paragraph 8, rejects claims 3, 7 and 8 under 35 U.S.C. §103(a) as being unpatentable over Tanuma as modified by Niikura and Plotkin as applied to claim 2 above, and further in view of Miller. The Office Action, in paragraph 9-12, varyingly rejects claims 12, 15, 16, 21-31 and 41-47 under 35 U.S.C. §103(a) as being unpatentable over Tanuma as modified by Niikura and further in view of one or more of what is apparently U.S. Patent No. 5,216,446 to Satoi et al. (hereinafter "Satoi"), U.S. Patent Application Publication No. US 2003-0197767 to Dudenhoefer et al., (hereinafter "Dudenhoefer"), U.S. Patent Application Publication No. US 2002-0001020 to Mrvos et al. (hereinafter "Mrvos") and/or U.S. Patent Application Publication No. US 2002-0003550 to Berg et al. (hereinafter "Berg"). These rejections are respectfully traversed.

At the outset, Applicants are unclear regarding the substance of the rejection in paragraph 9 of the Office Action, which is allegedly to a combination of Tanuma, Niikura, Plotkin and Satoi. Satoi is not referenced at all in the ensuing discussion, rather Dudenhoefer is referenced as allegedly teaching features that Tanuma, Niikura and Plotkin do not.

Independent claims 1 and 37 are amended to incorporate the subject matter previously recited in now-canceled claims 2 and 3. As such, Applicants arguments traversing the prior art rejections of the Office Action principally consider the rejections enumerated in paragraphs 7 and 8 of the Office Action over combinations of Tanuma, Niikura and Miller, and Tanuma, Niikura, Plotkin and Miller.

Tanuma teaches a printer carriage assembly having thermal dissipating means in which a printing head drive circuit of a printer is mounted on a side of a carriage allowing said carriage to act as a heat sink (Abstract). In Tanuma, an aluminum die casting carriage frame is provided, including a printing head, have affixed thereto an iron plate, the iron plate acting as a radiating plate for the printing head drive elements, the iron plate and the aluminum die casting carriage frame considered to have an extensive radiating effect (col. 3, lines 2-35). Such an iron plate, although Tanuma describes this iron plate as not being a heat sink, would, however, add additional weight, size, cost and/or energy usage to the print head. These are shortfalls as discussed in paragraph [0005] of Applicants' disclosure, that the subject matter of the pending claims seeks to overcome.

Niikura teaches an inkjet recording apparatus for recording on a recording medium using an inkjet recording head that records by discharging ink from ink discharge ports thereof (Abstract). Niikura teaches a means by which when a temperature sensed by a thermister reaches above a certain temperature, the temperature is lowered by "making a halt for a fixed time to prevent the breakage of the recording head, and further when a one-rank higher temperature is attained due to exhaustion of the ink, the control is made so that the recording operation is stopped compulsorily by a judgment of abnormality." As such, Niikura teaches another of the disadvantageous prior art techniques for limiting temperature in thermal printing components as discussed in paragraph [0002] of Applicants' disclosure, i.e., "[o]nce the temperature limit is exceeded, a slow down or cool down period is normally used to maintain ejection quality." Again, Niikura positively discloses a shortfall in the prior art that the Applicants recognized and that is an objective of the subject matter over the pending claims to overcome.

These disclosures alone may be considered enough to suggest that Tanuma and Niikura are not combinable in the manner suggested by the Office Action simply because they

both refer to printer components. These inventions both include recognized shortfalls in the prior art, a combination of which one of ordinary skill in the art would not have made to render obvious the subject matter of the pending claims. In one case, a heavier-than-necessary-weight thermally-conductive carriage is employed in an attempt to dissipate heat, and in another case, a slow down or cool down period is employed to dissipate heat.

Additionally, because Niikura requires such a slow down and/or cool down period and further because in the portion of Niikura cited by the Office Action, i.e. col. 7, lines 32-40, Niikura discloses a block 68 which is a heat sink member attached to the carriage 60, it is not reasonable to conclude that the Niikura device can be considered to teach a thermally-conductive fluid ejector carriage device. Again, it is these very heat sink members that the subject matter over the pending claims seeks to eliminate.

Plotkin teaches a print head assembly that is removably mounted to a carriage (Abstract). The concern in Plotkin is for a construction of a printer having a modular or unit print head assembly that can be readily mounted to, and removed from, a pen body or carriage in the event that the assembly needs repair or replacement (col. 1, lines 21-25). The carriage 32 disclosed in Plotkin "may be made of any rigid light-weight material, such as polysulfone" (col. 2, lines 12-14). There is nothing to suggest that polysulfone, or any other "rigid light-weight material" of which the assembly in Plotkin may be manufactured, is in any way thermally-conductive as asserted by the Office Action. In fact, were polysulfone alone thermally-conductive, there would be no need, for example, in the subject matter of the pending claims, to include a thermally-conductive material embedded within the base polymer material such as polysulfone. Again here, the Office Action draws conclusions that are not supported by the references taken individually or in combination.

MPEP §2143.01 instructs that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests

the desirability of the combination." MPEP §2143.01 further instructs that "[a]lthough a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.'" *See also In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Applicant respectfully submits that the rejection of at least independent claims 1 and 37 is improper in view of at least MPEP §2143.01 because the Office Action lacks the required specific objective evidence of a teaching, suggestion or motivation in the prior art for one of ordinary skill to combine the references in the manner suggested by the Office Action.

Additionally, MPEP §2141.02 states, "[a]scertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art reference as a whole." Further, "[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983). Given the above disclosures, as supplemented by the discussion below, it is unreasonable to conclude that the standard set forth above is met in the asserted combinations of references. They teach shortfalls in the prior art, a combination of which shortfalls one of ordinary skill in the art cannot reasonably be considered to have been willing to make, and a combination of shortfalls which certainly does not render obvious the subject matter of the pending claims

Miller teaches a method for making a thermoplastic, thermally-conductive interface article (Abstract). Miller teaches that thermally-conductive interface articles may be fashioned by injection molding a thermoplastic composition into molding members to form the article, the thermoplastic composition comprising a combination of thermoplastic elastomer matrix and a thermally-conductive filler material. There is nothing, however, in

Miller to suggest specifically fashioning print carriage and/or print carriage cartridge components from such compositions. This is specifically the solution that Applicants achieved. For at least this reason, any attempt to combine Tanuma, Niikura, Plotkin and/or Miller in the manner suggested by the Office Action can only be arrived at through the application of improper hindsight reasoning based on Applicants' disclosure.

Claim 1 recites, among other features, a thermally-conductive fluid ejector carriage device; and a fluid ejector module in thermal contact with the thermally-conductive fluid ejector carriage device, wherein the thermally-conductive fluid ejector carriage device is molded from a polymer material containing at least a base polymer and at least one thermally-conductive filler material. Claim 37 recites, among other features, establishing a heat flow path from at least one thermal fluid ejector module through contact with a thermally-conductive carriage device, the thermally-conductive polymer carriage device being molded from a polymer material containing at least a base polymer and at least one thermally-conductive filler material.

For at least the reasons indicated above, no permissible combination of the applied prior art references can reasonably be considered to teach, or to have suggested, the subject matter of independent claims 1 and 37, as amended. Additionally, because none of the other varyingly applied prior art references overcome any of the above-identified shortfalls in the application of Tanuma, Niikura, Plotkin and/or Miller to render obvious the subject matter of the independent claims, claims 4-31 and 38-50 would also not have been suggested by any combination of the applied prior art reference for at least the respective dependence of these claims directly or indirectly on independent claims 1 and 37, as well as for the separately patentable subject matter that each of these claims recites.

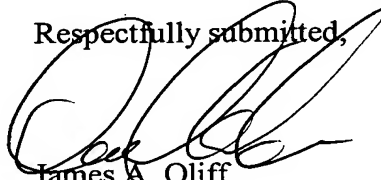
Applicants' representative briefly presented the above arguments regarding the combinability of Miller with Tanuma, Niikura and/or Plotkin in rendering obvious the subject

matter of the pending claims to Examiners Garcia and Feggins during the April 6 personal interview. The Examiners indicated that they would further consider Applicants' arguments upon submission of a formal response.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 4-31 and 37-50 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,



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